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CERTIFICATE OF MAILING

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Tanya Parker

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Technology Center 2100

(Signature of Person Mailing Paper or Fee)

Attorney Docket No.: NMTC-0770

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §1.97

Inventor:

Kevin D. MacLean, et al.

Title:

USING SUGGESTED A SOLUTION TO SPEED UP A PROCESS FOR

SIMULATING AND CORRECTING AN INTEGRATED CIRCUIT LAYOUT

Filing Date:

March 15, 2002

Serial Number:

10/098,714

Group Art Unit:

2123

Examiner:

To Be Assigned

Listed below or on an attached Form PTO-1449 is information known to applicant(s) and submitted pursuant to 37 C.F.R. §1.56. A copy of each listed publication and U.S. and foreign patent, except for pending U.S. applications, is being submitted herewith, along with a concise explanation of information in a foreign language, if any, pursuant to 37 C.F.R. §1.97-1.98.

Applicants respectfully request that the listed information be considered by the Examiner and be made of record in the above-identified application. If form PTO-1449 is enclosed, the Examiner is requested to initial and return it in accordance with MPEP §609.

This statement is not intended to represent that a search has been made or that the information cited in the statement is, or is considered to be, material to patentability as defined in §1.56.

X This statement qualifies under 37 C.F.R. §1.97, subsection (b) because (check all that apply):

- (1) It is being filed within 3 months of the application filing date
- __ (2) It is being filed within 3 months of entry of a national stage
- X (3) It is being filed before the mail date of the first Office Action on the merits.

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	filing of set fort merits,	RR. § 1.97(c). If this statement is being filed after the latest of: (1) three months beyond the late of a national application; (2) three months beyond the date of entry of the national stage as h in §1.491 in an international application; or (3) the mailing date of a first Office action on the but before the mailing date of the earlier of a final office action under §1.113 or a notice of nee under §1.311, then:
	_	a certification as specified in §1.97(e) is provided below; or
	_	a fee of \$240.00 as set forth in §1.17(p) is authorized below, enclosed, or included with the payment of other papers filed together with this statement. Please note that a check in the amount of \$240.00 is enclosed in payment.
_		R. §1.97(d). If this statement is being filed after the mailing date of the earlier of a final office under §1.113 or a notice of allowance under §1.311, but before payment of the issue fee, then:
	A.	a certification as specified in §1.97(e) is completed below; and
	B.	a petition under 37 C.F.R. §1.97(d) requesting consideration of this statement is submitted herewith; and
	C.	a fee of \$130.00 as set forth in §1.17(i)(1) is authorized below, enclosed, or included with the payment of other papers filed together with this statement.
_	contair patent of filing of inform counter after m statement	ent under 37 C.F.R. §1.97(e) - I hereby certify that either: each item of information need in the information disclosure statement was cited in a communication from a foreign office in a counterpart foreign patent application not more than three months prior to the of the information disclosure statement; or no item of information contained in the ation disclosure statement was cited in a communication from a foreign patent office in a repart foreign patent application, and, to the knowledge of the person signing the statement aking reasonable inquiry, no item of information contained in the information disclosure ent was known to any individual designated in section 1.56(c) more than three months prior filing of the information disclosure statement.
	Signati	A. Richard Park (Reg. No. 41,241) Date
		Respectfully submitted,

By: A Michael Park
Reg. No. 41,241

PARK, VAUGHAN & FLEMING LLP 508 Second Street, Suite 201 Davis, CA 95616 (530) 759-1661

Date: July 17, 2002

INFORMATION DISCLOSURE **CITATION**

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Atty. Docket No. NMTC-0770 Serial No.

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U.S. PATENT DOCUMENTS

MACLEAN, Kevin

ADEMAIN			U.S. PATENT DUCUM	ALCIVIS		
EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
	5,182,718	1/26/1993	Harafuji, et al.	364	490	3/29/1990
	5,432,714	7/11/1995	Chung, et al.	364	525	9/2/1994
	5,533,148	7/2/1996	Sayah, et al.	382	240	9/30/1993
·	5,538,815	7/23/1996	Oi, et al.	430	5	9/14/1993
	5,631,110	5/20/1997	Shioiri, et al.	430	5	6/5/1995
	5,657,235	8/12/1997	Liebmann, et al.	364	474.24	5/3/1995
	5,682,323	10/28/1997	Pasch, et al.	364	491	3/6/1995
	5,723,233	3/3/1998	Garza, et al.	430	5	2/27/1996
	5,815,685	9/29/1998	Kamon	395	500	9/15/1995
	5,825,647	10/20/1998	Tsudaka	364	167.03	3/12/1996
	5,885,734	3/23/1999	Pierrat, et al.	430	5	8/15/1996
•	5,991,006	11/23/0199	Tsudaka	355	53	10/27/1997
	6,009,250	12/28/1999	Ho, et al.	395	500.06	9/30/1997
	6,009,251	12/28/1999	Ho, et al.	395	500.06	9/30/1997
	6,011,911	1/4/2000	Ho, et al.	395	500.06	9/30/1997
	6,064,806	5/16/2000	Lakos, et al.	395	500.04	10/3/1997
	6,077,310	6/20/2000	Yamamoto, et al.	716	19	1/29/1999
	6,081,658	6/27/2000	Rieger, et al.	395	500.22	12/31/1997
	6,289,499	9/11/2001	Rieger, et al.	716	21	1/7/2000
	6,243,855 B1	6/5/2001	Kobayashi, et al.	716	19	9/29/1998
	6,249,597 B1	6/19/2001	Tsudaka	382	144	12/17/1998
	6,370,679 B1	4/9/2002	Chang, et al.	716	19	9/16/1998
-	2002/0010904 A1	1/24/2002	Ayres	716	19	7/23/2001

EXAMINER:	Date Considered:	

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INFORMATION DISCLOSURE	NMTC-0770	10
CITATION	Applicant	
DTO 1440	MACLEAN, Kevin	

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FOREIGN PATENT DOCUMENTS

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EXAMINER'S	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	TRANSI	АПОИ
INITIALS						YES	NO
	JP 3-80525	4/5/1991	JP				
	WO 00/67074 A1	11/9/2000	wo				
	WO 02/29491 A1	4/11/2002	wo				
	GB 2,324,169 A	10/14/1998	GB				
	WO 97/38381	10/16/1997	wo				
	WO 99/14636 A1	3/25/1999	wo				
	WO 99/14637 A1	3/25/1999	wo				
	WO 99/14638 A1	3/25/1999	wo				

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) **EXAMINER'S** CITATION **INITIALS** Ackmann, P., et al., "Phase Shifting and Optical Proximity Corrections to Improve CD Control on Logic Devices in Manufacturing for Sub 0.35 um I-Line", SPIE, Vol. 3051, pp. 146-153, March 12-14, 1997. Lithas, "Lithas: Optical Proximity Correction Software" (2 pages). Precim, "Proxima System", Precim Company, Portland, Oregon (2 pages). Precim, "Proxima Wafer Proximity Correction System", Precim Company, Portland, Oregon (2 pages). Rieger, M., et al., "Mask Fabrication Rules for Proximity-Corrected Patterns", Precim Company, Portland, Oregon (10 pages). Rieger, M., et al., "Using Behavior Modeling for Proximity Correction", Precim Company, Portland, Oregon (6 pages). Cobb, et al., "Fast Sparse Aerial Image Calculation for OPC", SPIE, Vol. 2621, pp. 534-544, September 20-22. 1995. Lucas, K., et al., "Model Based OPC for 1st Generation 193nm Lithography", Motorola Inc., IDT assignee to IMEC (12 pages). Stirniman, J., et al., "Quantifying Proximity and Related Effects in Advanced Wafer Processes", Precim Compnay, Hewlett Packard Labs (9 pages). Sugawara, M., et al., "Practical Evaluation of Optical Proximity Effect Correction by EDM Methodology", Sony Corporation (11 pages). Saleh, B., et al., "Reduction of Errors of Microphotographic Reproductions by Optimal Corrections of Original Masks", Optical Engineering, Vol. 20, No. 5, pp. 781-784, September/October 1981. Fu, C.C., et al., "Enhancement of Lithographic Patterns by Using Serif Features", IEEE, Transactions On Electron Devices, Vol. 38, No. 12, pp. 2599-2603, December 1991. Harafuji, K., et al., "A Novel Hierarchical Approach for Proximity Effect Correction in Electron Beam Lithography", IEEE, Vol. 12. No. 10, pp. 1508-1514, October 1993. Rieger, M., et al., "System for Lithography Proximity Compensation", Precim Company, Portland, Oregon, September 1993 (28 pages).

EXAMINER:	Date Considered:	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP § 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Group

JUL 2 3 2002

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2123

Technology Center 2100

TRADEMAR	OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)
EXAMINER'S INITIALS	CITATION
	Galan, G., et al., "Application of Alternating-Type Phase Shift Mask to Polysilicon Level for Random Logic Circuits", Jpn. J. Appl. Phys., Vol. 33, pp. 6779-6784 (1994).
	Stirniman, J., et al., "Fast Proximity Correction with Zone Sampling", SPIE, Vol. 2197, pp. 294-301 (1994).
·	Stimiman, J., et al., "Optimizing Proximity Correction for Wafer Fabrication Processes", SPIE, Photomask Technology And Management. Vol. 2322, pp. 239-246 (1994).
	Stirniman, J., et al., "Wafer Proximity Correction and Its Impact on Mask-Making", Bacus News, Vol. 10, Issue 1, pp. 1, 3-7, 10-12, January 1994.
	Henderson, R., et al., "Optical Proximity Effect Correction: An Emerging Technology", Microlithography World, pp. 6-12 (1994).
	Barouch, E., et al., "OPTIMASK: An OPC Algorithm for Chrome and Phase-Shift Mask Design", SPIE, Vo. 2440, pp. 192-206, February 1995.
	Yen, A., et al., "Characterization and Correction of Optical Proximity Effects in Deep-Ultraviolet Lithography Using Behavior Modeling", J. Vac. Sci. Technol. B, Vol. 14, No. 6, pp. 4175-4178, November/December 1996.
	Morimoto, H., et al., "Next Generation Mask Strategy - Technologies are Ready for Mass Production of 256MDRAM?", SPIE, Vol. 3236, pp. 188-189 (1997).
	Park, C., et al., "An Automatic Gate CD Control for a Full Chip Scale SRAM Device", SPIE, Vol. 3236, pp. 350-357 (1997).
	Dolainsky, C., et al., "Application of a Simple Resist Model to Fast Optical Proximity Correction", SPIE, Vol. 3051, pp. 774-780 (1997).
	Tsujimoto, E., et al., "Hierarchical Mask Data Design System (PROPHET) for Aerial Image Simulation, Automatic Phase-Shifter Placement, and Subpeak Overlap Checking", SPIE, Vol. 3096, pp. 163-172 (1997).
	Yamamoto, K., et al., "Hierarchical Processing of Levenson-Type Phase Shifter Generation", Jpn. J. Appl. Phys., Vol. 36, Part 1, No. 12B. pp. 7499-7503, December 1997.
	Chuang, H., et al., "Practical Applications of 2-D Optical Proximity Corrections for Enhanced Performance of 0.25um Random Logic Devices", IEEE, pp. 18.7.1-18.7.4, December 1997.
	Asai, N., et al., "Proposal for the Coma Aberration Dependent Overlay Error Compensation Technology", Jpn. J. Appl. Phys., Vol. 37, pp. 6718-6722 (1998).

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